Protective Factors Associated with Physical Activity in People Living with HIV: a Biopsychosocial Analysis

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Introduction

Physical activity plays a crucial role in the overall health and the factors that influence physical activity in specific populations is essential intervention strategies. The current study aims to provide an in-depth analysis of physical activity correlates in individuals living with HIV, adopting a biopsychosocial model. This model considers the interplay of demographic, biological, mental, and social factors, offering a comprehensive perspective on the determinants of physical activity in this population. The investigation is relevant given the unique challenges faced by people living with HIV and the potential impact of various factors on their engagement in physical activity.

Methods

The dataset utilized for this study was sourced from an NIH-funded project (3R01MD01350) The sample included 271 men who have sex with men living with HIV, and the analysis on physical activity correlates.

Statistical tests, including ANOVA, t-test, and chi-squared test, were used to assess the associations between predictors and demographic variables. The model encompassed four categories of factors:

1. **Demographic:** Race, Age, Income
2. **Biological:** Chronic Pain, Aggregated cardiorespiratory diagnoses, BMI, Arthritis, Sleep
3. **Mental:** Depression, Resilient Coping, Anxiety
4. **Social:** Social Capital, Discrimination, Internalized Homophobia

References

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Results

Table 1. *Effect of each predictor on physical activity adjusting for demographics.*

	$\beta\beta$	SE	*p*-value	$\Delta\Delta$ %
Pain	-.051	.018	.005*	-5.0%
Sleep	-.031	.017	.063	-3.1%
Heart, yes	-.242	.352	.493	-24.2%
Arthritis, yes	.062	.375	.869	6.2%
Asthma, yes	.089	.368	.809	8.9%
BMI	-.012	.035	.735	-1.2%
Depression	-.068	.028	.003*	-6.6%
Anxiety	-.072	.031	.021*	-7.0%
Stress	-.044	.019	.026*	-4.3 %
Homophobia	.483	.454	.288	62.1%
Discrimination	.026	.017	.128	2.7%
Resilience	.185	.048	<.001*	20.4%
Support	-.005	.126	.971	-.5%

Note. Regression coefficients β's are obtained after performing log transformation on the response variable physical activity.
Δ% indicates the percentage of change in physical activity.
* p < .05.

Table 2. *Final regression of effects on physical activity.*

	$\beta\beta$	SE	*p*-value	$\Delta\Delta$ %
Pain	-.046	.018	.010*	-4.5%
Resilience	.155	.051	.003*	16.8%
Age	.011	.012	.339	1.1%
Race				
White	Ref	Ref	Ref	Ref
Black	-.787	.422	.063	-78.7%
NHPI & Asian	-.223	.453	.623	-22.3%
Others	-.978	.564	.084	-97.8%
Income	.000	.000	.579	.0%

Note. Regression coefficients β's are obtained after performing log transformation on the response variable physical activity. Δ% indicates the percentage of change in physical activity.
* p < .05.

Discussion

The final model revealed that among the predictors, pain and resilience remained significant factors influencing monthly physical activity hours, measured in MET-scores. Table 1 displays the effects of each predictor on physical activity, adjusting for demographics. Notably, depression, anxiety, and stress exhibited negative associations with physical activity, while resilience demonstrated a positive impact. Table 2 presents the final regression effects, where pain and resilience retained their significance, indicating their main influence on physical activity even after adjusting for other factors. The comprehensive biopsychosocial model provides a nuanced understanding of the multifaceted influences on physical activity in this population, offering valuable insights for tailored interventions and healthcare strategies.

Conclusion

Our study sheds light on the complex interplay of biopsychosocial factors influencing physical activity among individuals living with HIV. The findings underscore the importance of addressing pain management and fostering resilient coping strategies to promote engagement in regular exercise. These insights are crucial for the development of targeted interventions aimed at improving the overall well-being and health outcomes of this population. Moving forward, further research is needed to explore additional factors and develop comprehensive approaches to support physical activity among people living with HIV.

References

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